

~~KORBIN B. redaktor~~

[The production plan for the "Put' novoi shisni" Collective Farm]
Perspektivnyi plan kolkhosa "Put' novoi shisni." Moskva, Moskovskii
rabochii 1955 folder 3 p. (MLRA 10:4)

1, Russia (1917- R.S.F.S.R.) Glavnoye upravleniye
sel'skokhozyaystvennoy nauki
(Collective farms)

KOBRIK, B., redaktor

[Michurinsk fruit growers] Sadovody - michurintsey. [Moskva] Moskovskii
rabochii, 1955. 266 p.
! (Moscow Province--Fruit culture) (MIRA 9:11)

SHASHKIN, Ivan Nikolayevich; KOBRIN, B., redaktor; IONAT'YEVA, A.,
tekhnicheskii redaktor

[Strawberries in collective farm orchards] Zemlianka v kolkhosnom
sadu. [Moskva] Moskovskii rabochii, 1956. 36 p. (MLRA 9:9)
(Strawberries)

KOBRIN, B., redaktor; LIL'YE, A., tekhnicheskii redaktor

[The "Moscow, Tula, Ryazan, Kaluga, and Bryansk Provinces" pavilion;
a concise guidebook] Pavil'on "Moskovskaiia, Tul'skaia, Riazanskaiia,
Kalushskaiia, Brianskaiia oblasti"; kratkii putevoditel'. [Moskva]
Moskovskii rabochii, 1956. 50 p. (MIRA 9:12)

1. Moscow. Vsesoyuznaia sel'skokhozyaystvennaya vystavka, 1954-
(Moscow--Agricultural exhibitions)

FILATOV, Nikolay Aleksandrovich; KOBRIN, B., redaktor; LIL'YE, A., tekhnicheskii redaktor

[Cheap vegetables in winter] Deshevala selen' zimoi. [Moskva]
Moskovskii rabochii, 1956. 71 p. (MIRA 10:1)
(Greenhouse management) (Vegetable gardening)

SATIN, Ivan Semenovich; KOBRIN, B., redaktor; YAKOVLEVA, Ye., tekhnicheskii
redaktor

[Lowering the production unit cost on collective farms] Snizhenie
sarat na edinitse kolxosnoi produktii. [Moskva] Moskovskii
rabochii, 1956. 76 p. (MLRA 9:11)
(Collective farms)

KOROBANOV, Nikolay Mikhaylovich; KOBREIN, B., redaktor; YAKOVLEVA, Ye.,
tekhnicheskiiy redaktor

[Along Ilich's path] Po puti Il'icha. [Moskva] Moskovskii rabochii,
1956, 97 p. (MLBA 9:8)

1. Predsedatel' kolkhosa "Put' Il'icha", Volokolanskogo rayona (for
Korobanov)
(Collective farms)

SKORNYAKOV, Sergey Mikhaylovich, agronom; KOBRIN, B., redaktor; YAKOVLEVA, Ye.
tekhnicheskii redaktor

[Organisation of production on a consolidated collective farm; an
agronomist's notebook] Organizatsiia proizvodstva v ukрупnennom
kolkhose; zametki agronoma. [Moskva] Moskovskii rabochii, 1956.
107 p. (MIRA 10:2)

1. Kolhoz "Borets", Bronnitskogo rayona (for Skorniyakov)
(Collective farms)

ANZIN, Boris Nikiforovich, kand. sel'skokhozyaystvennykh nauk; KOBRIK, B.,
red.; YAKOVLEVA, Ye., tekhn. red.

[Pruning fruit trees and berry bushes for the Central U.S.S.R.]
Obrezka plodovykh i jagodnykh kul'tur dlia srednei polosy SSSR,
Iss.2. [Moskva] Mosk. rabochii, 1956. 138 p. (MIRA 11:10)
(Pruning) (Fruit culture)

SMIRNOV, Nikolay Matveyevich; KOBRIN, B., redaktor; YAKOVLEVA, Ye.,
tekhnicheskii redaktor

[Apple trees] Iablonia. [Moskva] Moskovskii rabochii, 1956. 151 p.
(Apple) (MIRA 9:11)

KLOBRIN, B.

YAZVITSKIY, Mikhail Nikolaevich: ~~KLOBRIN, B.~~ redaktor; YAKOVLEV, Ye.,
tekhnicheskii redaktor

[Fertilizing orchards] Udobrenie sadov. Izd. 2-oe, dop. [Moskva]
Moskovskii rabochii, 1956. 190 p. (MLA 10:3)
(Fertilisers and manures) (Fruit culture)

AC 45778. 43
KOBRIK, B., red.

[Farms not included in the main agricultural exhibition; a brief
guidebook for 1956] Khosiatva vnevystavochnogo pokaz; kratkii
putevoditel' na 1956 god. [Moskva] Moskovskii rabochii [1956]
362 p. (MIRA 11:3)

(Collective farms) (State farms)

KOBRIN, B., red.; YAKOVLEV, Ye., tekhn. red.

[Collective farm chairman's notebook] Zapisnaya knizhka predsedatelya
kolkhosa. [Moskva] Mosk. rabochii, 1957. 431 p. (MIRA 11:7)
(Collective farms)

Account, B.
GENERALOV, Yedor Stepanovich, dvazhdy Geroy Sotsialisticheskogo Truda;
KORIN, B., red.; YEGOROVA, I., tekhn.red.

[Monthly wages on collective farms] *Eshemesiachnaya oplata v kolkhose.* [Moskva] Mosk.rabochii, 1957. 34 p. (MIRA 11:2)

1. Predsedatel' kolkhosa imeni Stalina, Lukhovitskogo rayona
(for Generalov)
(Wages) (Collective farms--Accounting)

ALPAT'YEV, Aleksandr Vasil'yevich, ~~+~~ KOBRIK, B., red.; YAKOVLEVA, Ye., tekhn. red.

[Tomatoes] Pomidory. Izd. 5., ispr. i dop. [Moskva] Mosk. rabochii,
1958. 159 p. (MIRA 11:11)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh
nauk imeni V.I. Lenina (for Alpat'yev).
(Tomatoes)

YACHMENTSEVA, Yelizaveta Ivanovna; KOHRIN, B., red.; PAVLOVA, S.,
tekhn.red.

[Collective farm equipment on collective farm fields] Kolkhos-
naisa tekhnika na kolkhosnykh pol'skikh. Moskva, Mosk.rabochii,
1959. 47 p. (MIRA 13:4)
(Collective farms) (Agricultural machinery)

OKHAPKIN, K.A., kand.sel'skokhozyaystvennykh nauk; KOBRIK, B., red.;
LIL'YE, A., tekhn.red.

[Cash wages on collective farms; practices in the area near
Moscow] Deneshnaya oplata truda v kolkhosakh; iz opyta
kolkhosov Podmoskov'ia. Moskovskii rabochii, 1959. 79 p.
(MIRA 12:6)

(Wages) (Moscow Province---Collective farms)

KOBRIN, B.B. [translator]; POPOV, P.V. [translator]; RUKAVISHNIKOV,
B.I., red.; SONKIN, D.A., red.; ARTIMOVA, Ye., tekhn.red.

[Development of resistance to insecticides in insects and
acarids; collection of articles] Priobrytenie nasekomykh i
kleshchami ustoiчивosti k iazam; sbornik statei. Moskva,
Izd-vo inostr.lit-ry, 1959. 331 p. (MIRA 13:8)
(Insects--Physiology) (Insecticides)

KOBRIN, B., red.; YAKOVLEV, Ye., tekhn.red.

[Fruit growers who follow Michurin] Sedovody-michurintsy.
Moskva, Mosk.rabochii, 1960. 274 p. (MIRA 13:11)
(Fruit culture)

KOLOMIYETS, Andrey Andreyevich; KOBRIN, B., red.; PAVLOVA, S., tekhn.red.

[Machinery and tools for over-all mechanization of vegetable growing] Mashiny i orudiia dlia kompleksnoi mekhanizatsii ovoshchevodstva. Moskva, Mosk.rabochii, 1960. 275 p.

(MIRA 13:5)

(Agricultural machinery)

YAKVITSKIY, Mikhail Nikolayevich, kand.sel'skokhos.nauk, zasluzhennyy
deyatel' nauki RSPSR; KOBRIN, B.; YAKOVLEVA, Ye., tekhn.red.

[Fertilizer application to orchards] Udobrenie sada. Izd.3.,
dop. Moskva, Mosk.rabochii, 1960. 214 p.

(MIRA 14:1)

(Fruit--Fertilizers and manures)

ARTEMOVA, Anfisa Vasil'yevna, kolхозnitsa; KOBKIN, B., red.; PAVLOVA, S.,
tekhn. red.

[Obtaining 27 centners of buckwheat per hectare] 27 tsentnerov gre-
chikhi s hektara. Moskva, Mosk. rabochii, 1961. 14 p.

(MIRA 14:6)

1. Sel'khozartel' "Put' Il'icha" Podpol'skogo rayona Moskovskoy
oblasti (for Artemova)

(Podolsk District--Buckwheat)

DUNSKIY, V.F.[translator]; KOBRIN, B.B.[translator]; PANKOVA, S.V.
[translator]; POPOV, P.V.[translator]; TRYAPITSYN, V.A.
[translator]; FADEYEV, Yu.N.[translator]; RUKAVISHNIKOV,
B.I., red.; FOMINA, N.O., red.; IOVLEVA, N.A., tekhn. red.

[Contemporary problems of entomology] Sovremennye problemy
entomologii; sbornik statei. Pod red. i s predisl. B.I.
Rukavishnikova. Moskva, Izd-vo inostr. lit-ry. Vol.2. 1961.
182 p. (MIRA 15:11)

(Insecticides)

(Insects, Injurious and beneficial--Control)

ANZIN, Boris Mikiiforovich; KOBRIN, B., red.; KUZNETSOVA, A., tekhn.red.

[Pruning fruit trees and berry bearing shrubs (for the central belt of the U.S.S.R.)] Obreska plodovykh derev'ev i iagodykh kustarnikov (dlia srednei polosy SSSR). Izd.3., dop. i perer. Moskva, Mosk.rabochii, 1962. 199 p. (MIRA 15:4)
(Pruning) (Fruit trees) (Berries)

MAKIMOVA, A.D., kand. sel'khoz. nauk; KOBRIN, B., red.; KUZNETSOVA, A.,
tekhn. red.

[Potatoes; advice, proposals, recommendations, and the
practices of efficient workers] Kartofel'; sovety, predlozheniya,
rekomendatsii, opyt peredovikov. Moskva, Mosk. raboshii, 1963.
268 p. (MIRA 16:5)

1. Moskovskoye oblastnoye nauchno-tekhnicheskoye obshchestvo
sel'skogo khozyaystva.

(Potatoes)

SAZONOV, P.V.; KOBRIN, B.B.

Strategy of plant pest control by chemicals. Trudy VIZR
no.17:21-48 '63. (MIRA 18:9)

FILATOV, Nikolay Aleksandrovich, zasl. agronom RSFSR; KOHRIN, B.R.,
red.; KUZNETSOVA, A., tekhn. red.

[Organization and economics of specialized state farms] Orga-
nizatsiia i ekonomika spetsializirovannogo sovkhoza. Moskva,
Mosk. rabochii, 1961. 118 p. (MIRA 15:1)
(State farms)

KOBRIN, B., red.; KHRAMOV, M., red.; KUZNETSOVA, A., tekhn. red.

[Use the land's riches to serve the motherland; materials] Bogatstva zemli - na sluzhbu Rodine; materialy. Moskva, Mosk.rabochii, 1961. 223 p. (MIRA 14:12)

1. Soveshchaniye rabotnikov sel'skogo khozyaystva nachernozemnoy zony R.S.F.S.R., Moscow, 1961.

(Agriculture—Congresses)

LANDA, Ya.A., kand.tekhn.nauk; Prinimali uchastiye: IVANOV, V.A., inzh.;
KOBIRIN, I.M., laborant; BULKINA, K.P., laborant

Granulation of refractory raw material. Trudy Inst. ognep. no.29:
107-152 '60. (MIRA 14:12)

(Granular materials)
(Refractory materials)

LYSENKO, N.V.; KOBRIN, L.S.

Structure and depreciation of the capital assets of the salt
industry. Sbor. nauch. trud. UkrNIISol' no.7:125-128 '64
(MIRA 18:1)

Amortization of capital assets in the salt industry. Ibid.:
128-130

ACC NR: AP6017986

(N)

SOURCE CODE: UR/0413/66/000/010/0086/0086

INVENTOR: Bashilov, I. P.; Bulanzhe, Yu. D.; Dubovik, A. S.; Yerofeyev, V. I.; Kevlishvili, P. V.; Kobrin, L. V.; Kogan, B. Ya.; Kas'min, A. I.; Popov, Ye. I.; Mikhaylov, N. N.; Churbakov, A. I.; Shilevko, A. V.

ORG: None

TITLE: An automatic device for determining acceleration due to gravity on a movable base. Class 42, No. 181833 [announced by the Institute of Physics of the Earth imeni O. Yu. Schmidt, AN SSSR (Institut fiziki Zemli AN SSSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 10, 1966, 86

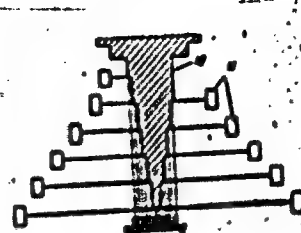
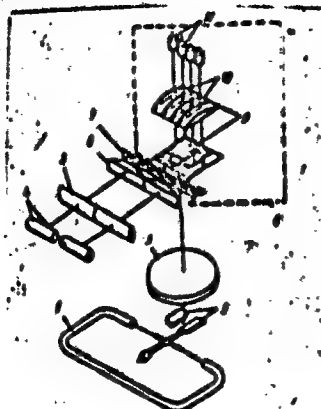
TOPIC TAGS: gravity, electron optics, electronic equipment, gravimeter

ABSTRACT: This Author's Certificate introduces an automatic device for determining acceleration due to gravity on a movable base, using a strongly damped elastic gravimeter system. The installation contains a meter for acceleration due to gravity, a system of mirrors, lens, light source, two condensers and a slotted prism. Accuracy of measurement is improved, and processing of the resultant information is automated by using an electron-optical converter which changes angles of turn of a pendulum to digital code. This converter is made in the form of a code mask with lenses attached. A prism is mounted behind the lenses with metallic mirrors and photocells.

Card 1/2

UDC: 531.768.08:528.026

ACC NR. AF6017986



1—accelerometer; 2—system of mirrors; 3—objective lens; 4—light source; 5 and 6—condensers; 7—slotted prism; 8—electro-optical converter; 9—code mask; 10—lenses; 11—photocells; 12—prism with metallic mirrors

SUB CODE: 09, 08/ SUBM 1.72: 12 May 74

Card 2/3

KOBRIN, M., kand. tekhn. nauk; IBNEVSKIY, I., kand. tekhn. nauk;
IPEDANOV, Yu., inzh.; IEL'CHIK, L., inzh.

Increasing the strength of frames by hammer hardening. Avt.
transp. 43 no.2:26-28 P '61. (MIRA 18:6)

KHOLIN, I.I., kand.tekhn.nauk; KOIRIN, M.O., inzh.

Improving the use of cement in construction. Prom. stroi. 40
no.3142-44 '62. (MIRA 15:3)

1. Gosudarstvennyy vsesoyuznyy nauchno-issledovatel'skiy
institut tsementnoy promyshlennosti (for Kholin).
(Cement)

KHOLIN, I.I., kand.tekhn.nauk; KOBRIN, M.G., inzh.

Better organization of cement transportation. Zhel.dor.transp.
44 no.11:64-66 N '62. (MIRA 15:11)
(Cement--Transportation)

KORRIN, M. M.

O prichinakh avarii greifernogo krana gruzopod'emnost'iu 5000 kg.
(Vestn. Mash., 1950, no. 1, p. 23-25)

Causes of the breakdown of a grab crane with a 500 kg. load-lifting capacity.

ILC: TNL.VL

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library
of Congress, 1953.

KOBREI, M. M.

Ob ustalostnom razrushenii detali, rabotavshoi v staticheskikh usloviakh.
(Vestn. Mash., 1950, no. 3, p. 18-20)

Breakdown of a machine part due to fatigue under static conditions.

DLC: TM4.V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library
of Congress, 1953.

of the

superior & tests

Results of Works Trials on IS-15A Tensile Testing Machines.
M. M. Kaban and A. S. Shvach. (Zavodskaya Laboratoriya,
1955, No. 1, 576-580). (In Russian). A description is given
of a series of tests carried out on new tensile testing machines
under works conditions. Suggested improvements are listed.

<p>100-Q Fatigue Fracture of Machine Parts Operating Under Static Conditions (in Russian) M. M. Khrushchov, Vostochnye Mashinostroyeniya (Bulletin of the Machine Construction Industry), v. 28 Mar. 1966, p. 15-22.</p> <p>Cause of fatigue failure of the main thrust screw (carbon steel) of a plastic extrusion press. Repeated alternating tensile and bending stresses are caused by operating conditions. (Q, CN)</p>	
<p>AD-158 METALLURGICAL LITERATURE CLASSIFICATION</p>	
<p>AD-158</p>	<p>AD-158</p>

10.11.11.

Surface toughening of cast steel by cold working on the surface. (The experimental results of this author show that it is in many cases advisable to replace steel forgings by surface-toughened steel castings; its sensitivity to stress concentrations in the case of "notches" and its resistance to cyclic stresses is considerably lower than that of forged steel which was not "surface toughened") - pp. 102 - 121.

A paper contained in the symposium "Research Work on the Strength of Steel", edited by I. V. Kudr. atseva, Mas'giz, 1951.

KOBRIN, M. M., Engineer

"Surface Cold Working As a Medium for Increasing the Endurance Strength of Cast Steel Parts and Pressed Joints," Sub 14 May 51, Central Sci Res Inst of Technology and Machine Building (TsNIITMAh)

Dissertations presented for science and engineering degrees in Moscow during 1951.

SC: Sum. No. 480, 9 May 55

KOBRIN, M. M.

Engr.

"Strengthening Cast Steel by Surface Cold Hardening," pp 102-121 of the book
"Studies on the Strength of Steel," Mashgis, 1951

Translation W-23621, 21 Aug 52

1. KOBRIN, M. M.
2. USSR (600)
4. Metals - Finishing
7. Effect of the method of finishing the surfaces of fittings upon the strength of pressed joints under the stress of a long. cyclic load. Vest mash No 6 1952.
9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

KOBRIN, M. M.

Couplings

Does burnishing with rollers decrease the durability of compression couplings? Vest.
mash., 32, No.3, 1952

Monthly List of Russian Accessions. Library of Congress, October 1952. UNCLASSIFIED.

KOBRIN, N.M.

KOBRIN, N.M., kandidat tekhnicheskikh nauk; POZDNYAKOV, S.N., dotsent,
retsensent; PRONIN, B.A., kandidat tekhnicheskikh nauk, redaktor;
MODEL', B.I., tekhnicheskii redaktor

[Strength of press couplings under repeatedly varying loads] Prochnost' pressovykh soedinenii pri povtorno-peremennoi nagruske. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroitel'noi lit-ry. 1954. 203 p. (MIRA 8:4)
(Couplings)

14135* (Determining Residual Forces in Forgings of Turbine)

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Vol.

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evaluation B-8124

KOBRIN, M.M., kandidat tekhnicheskikh nauk; KOTIKOVA, Ye.T., kandidat
~~tekhnicheskikh nauk.~~

Experience of the Central Scientific Research Institute of Technology
and Machine Building in the hardening of machine parts by shot peening.
[Trudy] TSNIITMASH no.63:104-117 '54. (MLBA 7:9)
(Machinery) (Shot peening)

KOBRIN, M.M.

Study of residual stress duration following repeated load
tests. Zav.lab. 21 no.4:467-472 '55 (MLRA 8:6)

1. Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya.
(Strains and stresses) (Steel--Testing)

NO FRID 22 1955
KOBRIN, M.M., kandidat tekhnicheskikh nauk

"Mechanical testing of materials." M.I.Vol'skii, L.K.Gumennyi.
Reviewed by M.M.Kobrin. Zav.lab.21 no.8:1013-1014 '55.
(MIRA 8:11)

(Testing) (Vol'skii, M.I.) (Gumennyi, L.K.)

Kobrin, M.M.

USSR/Solid State Physics - Mechanical Properties of Crystals and Polycrystalline Compounds, E-9

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34851

Author: Kobrin, M. M.

Institution: Central Scientific Institute of Technology and Machine Building USSR

Title: Measurement of Deformation with the Aid of a Tension Ring During the Study of Permanent Stresses by the Zaks Method

Original Periodical: Zavod. laboratoriya, 1955, 21, No 10, 1229-1253

Abstract: A procedure is proposed for determining the radial and tangential permanent stresses in short shafts or discs. The method is based on the different character of change in the strength of a pressed joint (a ring pressed on the shaft) as the shaft is bored layer by layer, in the case of presence or absence of permanent stresses in the latter.

1 of 1

- 1 -

KOBRIN, M.M., kandidat tekhnicheskikh nauk

Residual stress magnitude changes in steel by cyclic loading.
[Trudy] TSNIITMASH no.70:35-48 '55. (MLRA 8:11)
(Steel--Fatigue)

KOBRIN, M. M.

KOBRIN, M. M., kandidat tekhnicheskikh nauk; CHERNODOV, S. V., inzhener

Study of residual stress in turbine disk forging. [Trudy]
TSNIITWASH no. 70:61-81 '55. (MLRA 8:11)
(Disks, Rotating--Testing)

KOBRIN, M.M., kandidat tekhnicheskikh nauk.

Strength and mechanics of rupture of press joints under repeated load.
[Trudy]TSNIITMASH no.74:102-131 '55. (MIRA 9:1)
(Metals--Testing)

IVANOV, Vasil'y Vasil'evich, kandidat tekhnicheskikh nauk; KORIN, M.M.,
kandidat tekhnicheskikh nauk, redaktor; KANDYKIN, A.Ye., tekhnicheskii
redaktor

[Strengthening parts of rolling stock by rolling] Uprochnenie
detalei podvishnogo sostava nakatki. Moskva, Gos. transp. shel-dor.
izd-vo, 1956. 137 p. (MIRA 10:3)
(Rolling (Metalwork)) (Railroads--Rolling stock)

AVRASIN, Ya.D., kandidat tekhnicheskikh nauk; BERO, P.P., professor, doktor tekhnicheskikh nauk, BERNISHTEYN, M.L., kandidat tekhnicheskikh nauk; ONNEROZOV, P.A., starshiy nauchnyy sotrudnik; OLINER, B.M., inshener; DAVIDOVSKAYA, Ye.A., kandidat tekhnicheskikh nauk; YELCHIN, P.M., inshener; YEREMIN, N.I., kandidat fiziko-matematicheskikh nauk; IVANOV, D.P., kandidat tekhnicheskikh nauk; YNOROZ, L.I., inshener; KORBIN, M.M., kandidat tekhnicheskikh nauk; KORITSKIY, V.G., dotsent; KHOTKOV, D.V., inshener; KUDRYAVTSEV, I.V., professor, doktor tekhnicheskikh nauk; KULIKOV, I.V., kandidat tekhnicheskikh nauk; LEFOTOV, V.A., kandidat tekhnicheskikh nauk; LIKINA, A.P., inshener; MATVEYEV, A.S., kandidat tekhnicheskikh nauk; MIL'MAN, B.S., kandidat tekhnicheskikh nauk; PAVLUSHKIN, N.M., kandidat tekhnicheskikh nauk; PITSYN, V.I., inshener [deceased]; RAKOVSKIY, V.S., kandidat tekhnicheskikh nauk, RAKHSHTADT, A.G., kandidat tekhnicheskikh nauk; RYABCHENKOV, A.V., professor, doktor khimicheskikh nauk; SIOOLAYEV, S.Ya., kandidat tekhnicheskikh nauk; SMIRYAGIN, A.P., kandidat tekhnicheskikh nauk; SUL'KIN, A.G., inshener; TUTOV, I.Ye., kandidat tekhnicheskikh nauk; KHRUSHCHOV, M.M., professor, doktor tekhnicheskikh nauk; TSYPIN, I.O., kandidat tekhnicheskikh nauk; SHAROV, M.Ya., inshener; SHERMAN, Ya.I., dotsent; SIDEL'N, B.A., kandidat tekhnicheskikh nauk; YUGANOVA, S.A., kandidat fiziko-matematicheskikh nauk; SATEL', B.A., doktor tekhnicheskikh nauk, redaktor; SOKOLOVA, T.P., tekhnicheskii redaktor

[Machine builder's reference book] Spravochnik mashinostroitelia; v shesti tomakh. 1sd-vo mashinostroit. lit-ry. Vol.6. (Glav. red.tom 6. A.Satel'. 1sd. 2-oe, ispr. i dop.) 1956. 500 p. (MIRA 9:8)
(Machinery--Construction)

KOBAIN, M. M.

"Strength of pressed-on joints in connection with cold hardening of fitting surfaces by rolling," a paper presented at International Conference of Fatigue of Metals, London, Sep. 56.

DSI. No. 103

SOV/137-57-1-1100

Translation from: Referativnyy zhurnal. Metallurgiya, 1957, Nr 1, p 142 (USSR)

AUTHOR: Kobrin, M. M.

TITLE: Hardening of Hub-carrying Sections of Shafts by Means of Burnishing With Rollers and the Strength of Forced Fits Under the Action of Cyclic Loading (Uprochneniye podstupichnykh chastey valov obkatkoy rolnikami i prochnost' pressovykh soyedineniy pri povtorno-peremennoy nagruzke)

PERIODICAL: V sb.: Povysheniye dolgovechnosti mashin. Moscow, Mashgiz, 1956, pp 134-150

ABSTRACT: The strength (S) of a force-fit connection (FF) under the action of an axially applied cyclic loading (L) was investigated on a shaft of normalized grade-40 steel which had been roll-burnished with a three-roller device under a pressure of 50 kg and had then been press fitted to the bushing of a ball bearing. In the case of pulsating cycles, as well as cycles with large amplitudes, the destruction of a FF occurs under the action of a total cyclic L which is twice as great as the force required in assembling the components. This circumstance demonstrates the impossibility of plotting a function of the

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SOV/137-57-1-1100

Hardening of Hub-carrying Sections of Shafts by Means of Burnishing (cont.)

fatigue curve and indicates that the cyclic S of FF's subjected to axial L is comparable to the static S. Alternating symmetrical torsion was employed in testing of roll-burnished and ground specimens of steel 40 and specimens of a steel containing 1.2% C which had been machined only. On the strength of the investigations performed the only criterion that could be established was a safe limit of cyclic L below which the FF's are not disrupted. Under conditions of the combined action of bending and torsional stresses, the endurance of roll-burnished specimens exceeds that of polished specimens by 70%. Roll-burnished specimens were subjected to alternating-bending pretreatment, wherein they were subjected to stresses of 12-22 kg/mm², the number of cycles amounting to 30×10^6 . A resonant-frequency fatigue-testing machine was employed to provide alternating torsion loading for the FF's. Experience shows that the resistance of specimens to cyclic torsion is significantly increased as a result of such preliminary bending treatment which accomplishes a relief of residual stresses arising in the surface layer during roll-burnishing. Compared with ground surfaces, roll-burnishing of specimens increased their endurance limit by a factor of 2.5. Hardening of the hub-carrying sections of shafts by means of roll-burnishing with rollers does not impair the S of a FF between a shaft and a bushing under cyclic as well as under static L.

Card 2/2

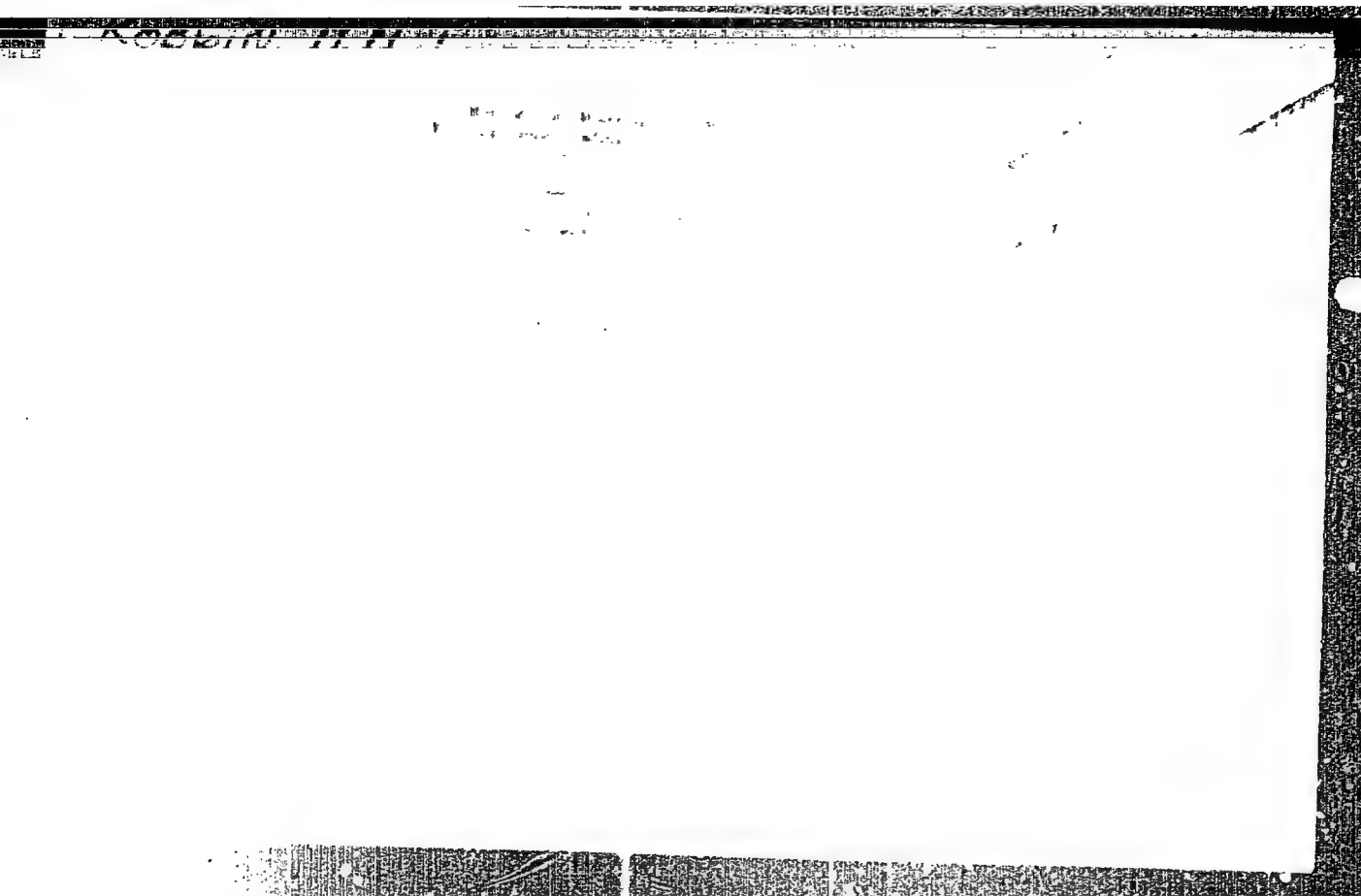
R. B.

KORIN, M.M. (Moskva)

Contact stress distribution between tightly assembled shafts and bushings. Izv.AN SSSR Otd.tekh.nauk no.2:136-139 Y '56.(NIRA 9:7)
(Strains and stresses) (Shafts and shafting)

"APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723410018-5



APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723410018-5"

ADDITIONAL

USSR/Acoustics - Ultrasonics, J-4

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35587

Author: Yermolov, I. N., Kobrin, M. M., Krakoviyak, M. P.

Institution: None

Title: Application of Ultrasonics to Study the Development of Fatigue Cracks in Shafts Under a Press-Fitted Part

Original

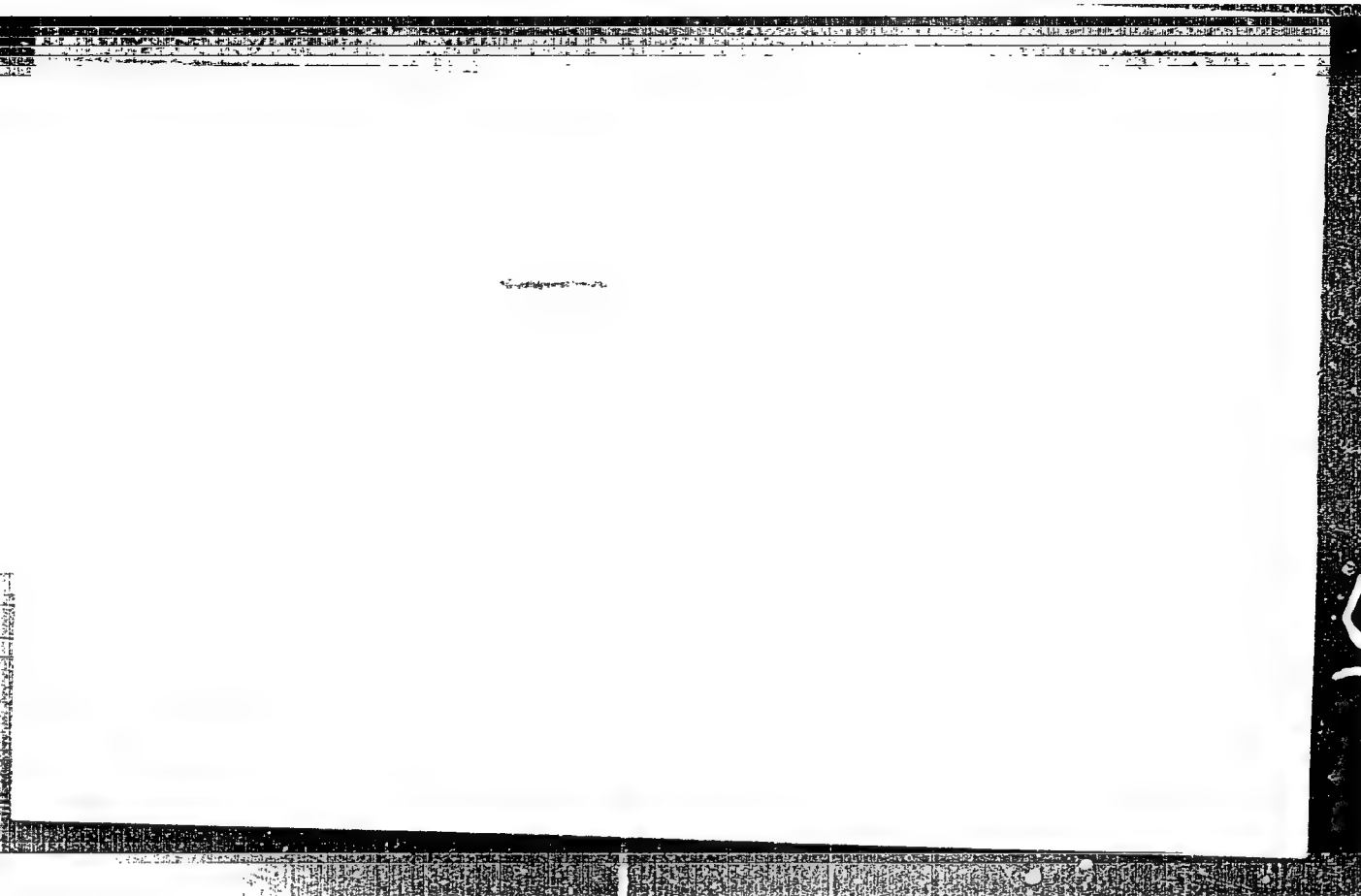
Periodical: Zavod. laboratoriya, 1956, 22, No 6, 724-728

Abstract: None

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"APPROVED FOR RELEASE: 09/18/2001

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APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000723410018-5"

OLIMER, Boris Moiseyevich; KUDRYAVTSEV, I.V., professor, retsentsent;
KOBRIK, M.M. kandidat tekhnicheskikh nauk, redaktor; BRYZEL'MAN,
K.D., redaktor izdatel'stva; UVAROVA, A.F., tekhnicheskly redaktor

[Determining mechanical and technological properties of metals;
concise handbook] Opredelenie mekhanicheskikh i tekhnologicheskikh
svoystv metallov; kratkoe spravochnoe posobie. Moskva, Gos.nauchno-
tekhn.izd-vo mashinostroit.lit-ry, 1957. 155 p. (MIRA 10:9)
(Metals)

SOV/124-58-1-1232

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 1, p 154 (USSR)

AUTHORS: Ivanov, V. V., Kobrin, M. M.

TITLE: Improvement of the Fatigue Strength of Cylindrical and Conical Shafts With a Press-mounted Sleeve by Means of Surface Cold-hardening Accomplished by Knurling Rollers (Povysheniye ustalostnoy prochnosti tsilindricheskikh i konicheskikh valov s pressovoy posadkoy poverkhnostnym naklepom obkatkoy rolikami)

PERIODICAL: V sb.: Vopr. konstrukts. prochnosti stali. Moscow, Mashgiz, 1957, pp 40-66

ABSTRACT: The feasibility of the use of surface hardening by means of peripheral rolling for the purpose of increasing the fatigue strength of press-mounted sleeves is shown on the example of a crank pin and a piston pin.

Reviewer's name not given

Card 1/1

137-58-3-5124

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 93 (USSR)

AUTHOR: Kobrin, M. M.

TITLE: Increasing the Fatigue Strength of Threads in Coupling Locks of Boring Bars by Burnishing with Rollers (Povysheniye ustalostnoy prochnosti rez'by soyedinitel'nykh zamkov buril'nykh shtang obkatkov rolkami)

PERIODICAL: V sb.: Vopr. konstruks. prochnosti stali. Moscow, Mashgiz, 1957, pp 83-89

ABSTRACT: An account of the effect of cold hardening produced by burnishing of coupling locks of boring bars with rollers; graphs are given and a sketch of the burnishing device is shown. Investigations have demonstrated that the burnishing process work-hardens the surface and produces local residual compressive stresses; these stresses offset the peaks of tensile stresses which arise in the operation of the boring bar. As a result of the abovementioned circumstances, the fatigue strength of the coupling locks is increased. The experimental lot (200 bars) was placed into operation.

Card 1/1

Yu. L.

KOBRIN - M. M.

SOV/137-58-8-18047

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 263 (USSR)

AUTHOR: Kobrin, M. M.

TITLE: Effect of Preliminary Stressing on the Resistance of a Press-fit Connection to Cyclic Torsion (Vliyaniye predvaritel'noy trenirovki na soprotivlyayemost' pressovogo soyedineniya tsiklicheskomu skruchivaniyu)

PERIODICAL: V sb.: Vopr. konstrukts. prochnosti stali. Moscow, Mashgiz, 1957, pp 90-99

ABSTRACT: The resistance to torsion of a press-fit connection (PC) with a cyclic load and with preliminary stressing (PS) by bending in alternating senses, was investigated on samples 50 mm in diam with a pressed-on bushing 120 mm in diam. The material for the specimens is forged railroad-axle steel of the following composition (in %): C 0.33 - 0.35, Si 0.31 - 0.35, Mn 0.70 - 0.77, Cu 0.18 - 0.25; the bushing material is St-20 grade steel without heat treatment. Before pressing the specimens were rolled in two passes through a three-roller device at a roller pressure of 800 kg and were then ground. Specimens with pressed-on bushing received PS on a console-type machine with rotary bending; an

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SOV/137-58-8-18047

Effect of Preliminary Stressing on the Resistance (cont.)

additional cyclic-torsion test was conducted with incremental loading on a resonance-type fatigue-testing machine. The relative strength of the PC was determined as the ratio of the cyclic moment causing the twisting of the bushing on the rod to the initial press-fitting moment. Experiments showed that PC with a rod rolled by rollers possess a resistance to cyclic twisting which is not less and is sometimes greater than the connections with a ground rod under the conditions of an equal preliminary PS of specimens for reverse bending (stress 9 kg/mm^2 , number of cycles 30 million). This PS increases the resistance of PC of the first type in proportion to the intensity of PS. If PC of either type had no preliminary PS, then upon cyclic loading by twisting moments 1.4 times greater than the initial moments no failure of PC was observed. If in the process of incremental loading of PC by alternating-sign twisting the torsional stresses occurring in the rod are of the order of 9 kg/mm^2 and higher, then the relative strength increases 5 - 8 times when the residual stresses in the tested steel are removed.

S. G.

1. Mechanics
2. Interference fits—Analysis
3. Interference fits—Properties
4. Interference fits—Test methods

Card 2/2

KOBRIN, M. M.

137-58-1-2001

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 269 (USSR)

AUTHOR: Kobrin, M. M.

TITLE: Measuring Strains by Means of a Shrunk-on Ring When Studying Residual Stresses by the Sachs Method (Izmereniye deformatsiy s pomoshch'yu natyazhnogo kol'tsa pri izuchenii ostatochnykh napryazheniy metodom Zaksa)

PERIODICAL: V sb.: Vopr. konstrukts. prochnosti stali. Moscow, Mashgiz, 1957, pp 198-218

ABSTRACT: A simple method is described constituting a supplementation of the study of residual stresses (RS) by the Sachs method, making it possible to employ the latter in the absence of highly-sensitive measuring instruments to measure small deformations (D) arising in a product as layers of metal are removed. The instrument needed to make use of this method consists of an ordinary micrometer and a press with a dynamometer or a machine for static torsion testing. The method consists of employing a shrunk-on ring as an indicator of the D in a cylinder containing RS and subject to tension. As the shrunk-on ring (SR) makes it possible to determine the diametral D of the

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137-58-1-2001

Measuring Strains by Means of a Shrunk-on Ring (cont.)

cylinder only, this method is suited to the study of tangential and radial RS in cylinders of small height, namely, disks. This method is based on the difference in the nature of change in the strength in shrunk-on joints consisting of a SR and a cylinder being machined layer by layer, in cases in which the cylinder does and does not have RS. Calculated expressions are presented for computations of the magnitude of the relative tangential D in relation to the change in the strength of the seating of the SR on the disk when RS are removed by boring. An experimental check is presented of the method of employment of a SR for cases in which the strength of seating of a ring is measured by pressure-relief expansion and by torsion. When a SR is shrunk on to a disk, the seating surfaces of the disk and the SR are lubricated with machine lubricant. It is shown that to avoid skewing and scoring of seating surfaces, the shrinking of the disk into the ring should be done in a guide sleeve. The rate of shrinking-in should be constant for all pairs of disks in the SR and should not exceed 10mm/min. Shrinking-on should be accompanied by a recording of the shrink-on diagram and of the maximum shrinkage stress. After shrinking-on, the joints should be set aside for not less than two days. The method and experimental results of studies of RS in steel shafts strengthened by peripheral rolling are presented. It is shown that the SR method may be significantly simplified by determining the seating strength of a ring to

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137-58-1-2001

• **Measuring Strains by Means of a Shrunk-on Ring (cont.)**

torsion (in this case boring and torsion can both be applied in a single pressed joint) and by the employment of a SR approximately 80 percent of the height of the disk, which provides good agreement between the experimental and theoretical curves for change in the strength of SR joints subjected to boring after a spindle has been shrunk-in.

L. G.

1. Stresses—Measurement 2. Rings—Applications

Card 3/3

KOBRIN, M.M.

AUTHOR: Kobrin, M.M., Candidate of Technical Sciences and
Rabinovich, V.P., Engineer. 96-7-3/25

TITLE: Testing to destruction of models of rotating turbine
discs. (Razrusheniye modeley vrashchayushchikhsya
turbinnykh diskov.)

PERIODICAL: "Teploenergetika" (Thermal Power), 1957, Vol.4, No.7,
pp. 16 - 20 (U.S.S.R.)

ABSTRACT: The combination of properties required in the alloy
steels used to make turbine discs is achieved by making
the structure homogeneous by appropriate hardening and
tempering procedures. However, the structure may some-
times be somewhat heterogeneous particularly in large
discs. A possible form of heterogeneous structure con-
sists of a comparatively hard sorbite base with inclu-
sions of small quantities of a plastic ferrite compon-
ent. Steel of this structure fails at the plastic com-
ponent.

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In order to evaluate the influence of such struct-
ural changes tests were made on rotating models to
determine the strength of turbine discs. The strength
was evaluated by overspeed tests carried out to

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CIA-RDP86-00513R000723410018-

Testing to destruction of models of rotating turbine
discs. (Cont.) 96-7-3/25

destruction on model discs. The disc tested is illus-
trated in Fig. 1, it is of 250 mm diameter and 38 mm
thickness at the boss. The dimensions are given. The
discs were made from a single melt of steel 32 XH3M
of the following chemical composition: 0.31% C, 0.27%
Si, 0.52% Mn, 0.021% S, 0.025% P, 0.082% Cr, 3.13% Ni
and 0.33% Mo. The heat treatment of the forgings is
described. The heterogeneous structure was produced
by incomplete hardening of discs which had previously
been heat treated and fully machined. A special oven
for heating the discs is described. The micro-structure
of the metal of the discs in zones near to the surface
of the hole in the boss is shown in Fig. 3. The hetero-
geneous structure consists of a comparatively hard
basis of martensite sorbite and small sections of a
plastic component - free ferrite located on the bound-
aries of the former austenitic grain in the form of a
network or individual inclusions. The heat treated and
machined discs were mounted on a shaft with an inter-
ference of 0.03 - 0.06 mm. Keys were also provided.

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Testing to destruction of models of rotating turbine discs. (Cont.) 96-7-3/25

maximum and is taken as the 'elastic' rupturing stress. In the second method the calculation was made according to the mean tangential stress on the supposition that at the moment of fracture there is complete equalisation of stress over the radius of the disc because of plastic deformation. The distributions of elastic and mean stresses over the radius of a disc at a speed of 18 000 r.p.m. are plotted in Fig. 5. The results of overspeed tests on discs with homogeneous and heterogeneous structure are tabulated together with information about the mechanical properties of the steel. It follows from comparison of the mechanical properties that the steel is of higher strength in the heterogeneous condition. Considerable plasticity is retained despite the heterogeneous structure. Plastic failure with necking was observed with both homogeneous and heterogeneous structures. Overspeed tests in the plane stressed condition and stress concentrations caused by the presence of deep and narrow slots gave quite different behaviour for discs with homogeneous and

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CIA-RDP86-00513R000723410018-

Testing to destruction of models of rotating turbine discs. (Cont.) 96-7-3/25

heterogeneous structure. Discs of homogeneous structure undergo considerable plastic deformation before failure. A deformation diagram is given in Fig. 7, from which it is seen that the zone of plastic deformation occupies a considerable area and extends in a radial direction from the bottom of the slot. In discs with heterogeneous structure no traces of plastic deformation before failure were found. The type of fracture was quite different in the two cases as illustrated in Fig. 8. The different nature of fracture in the two cases is also evident from the difference in the appearance and condition of the fractured surfaces illustrated in Fig. 9. Practical brittle fracture of discs with heterogeneous structure instead of plastic fracture of discs with homogeneous structure was reflected in the results of the overspeed tests. The tabulated results show that discs Nos. 7 and 8, of heterogeneous structure, failed at lower speeds than all the rest although their tensile strength was 30 - 50% higher. It is concluded that the structural condition of the steel has an important influence on

Card 5/6

AUTHORS: Kobrin, M.M., Candidate of Technical Sciences and Shishokina, K.V., Ing. (TsNIITMASH).

TITLE: Residual stresses in surface hardened components after tempering them at martensite decomposition temperatures. (Ostatochnye napryazheniya v poverkhnostno-zakalennykh izdeliyakh posle otpuska pri temperaturakh raspada martensita).

PERIODICAL: "Metallovedenie i Obrabotka Metallov" (Metallurgy and Metal Treatment), 1957, No.5, pp.29-33 (U.S.S.R.)

ABSTRACT: Golovin (2 and 3) found that in the surface-hardened layer of medium carbon steel components a change in the residual stresses, from compressive to tensile, takes place in the case of tempering. The authors of this paper studied the residual stresses on surface hardened components after low temperature tempering on discs of 180 and 100 mm dia., 17 mm high made of steel containing 0.93% C; 1.40% Cr; 0.12% Ni; 0.35% Si; 0.33% Mn; 0.024% S and 0.026% P. Prior to the surface hardening the discs were annealed for three hours at 780°C and for two hours at 720°C, cooled in the furnace down to 50°C and then hardened in oil from 830°C and tempered at 730°C followed by cooling in the furnace. The surface hardening was effected by a 2500 c.p.s. current and following that the discs were tempered in the furnace at 150, 300 and 400°C during ten hours. A change of the

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Residual stresses in surface hardened components after tempering them at martensite decomposition temperatures. (Cont.)

residual stresses from compressive stresses in the hardened layer to tensile after tempering at a temperature of intensive martensite decomposition was observed, as was observed by other authors for medium carbon steels. If tempering is carried out in this temperature range, the residual stresses in the transient zone directly below the hardened layer also change and the originally tensile residual stresses change into compressive stresses. Such re-distribution of the residual stresses is local in character and encompasses only the hardened layer and the transient zone. The characteristic of the stress epure does not change outside these zones and the level of the residual stresses decreases with increasing tempering temperatures. The residual compressive stresses which form in the zone directly below the surface hardened layer apparently bring about some increase in the fatigue strength of components tempered at 300 to 400°C, the destruction of which is initiated by the formation of cracks in the transient zone. 1 Table, 3 Graphs; one German and seven Russian references.

Card 2/2

Kobrin, M.M.

133-8-23/28

AUTHOR: Kobrin, M.M. (Cand. Tech.Sc.)

TITLE: Residual stresses are the main cause of variation in the rod diameter after cold drawing. (Ostatochnyye napryazheniya - osnovnaya prichina izmeneniya diametra prutka posle kholodnogo volocheniya).

PERIODICAL: "Stal'" (Steel), No.8, 1957, p.754 (USSR).

ABSTRACT: This note contains remarks on the previously published paper by A.I.Kukhorev ("Stal'", 1956, No.2). The statement by the original author that "rod diameter is always somewhat larger than the die through which it is drawn" is challenged as not being exact although it is true for the degree of reduction used in practice. Variations in the elastic changes in the rod diameter can be explained by the action of residual stresses after cold drawing.

There are 2 references, including 1 Slavic.

ASSOCIATION: TsNIITMASH.

AVAILABLE: Library of Congress
Card 1/1

~~KORBIN~~ SHISHOKINA, K.V.

Cases of "delayed action" rupture in steel. Zav. lab. 23 no.5:597-
600 '57. (MLBA 10:8)

1. Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i
mashinostroyeniya.

(Steel--Testing)

KOBRIN, M.M.

32-9-24/43

AUTHOR: Kobrin, M.M., Rabinovich, V.P.

TITLE: Analysis of the Structure of Fractures of Rotating Disks (Analiz stroyeniya islomov vrashchayushohikhaya diskov)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 9, pp.1109-1114 (USSR)

ABSTRACT: Here an example of the complicated structure of fractures in rotating disks is used as a basis for comparing simple and complicated fractures. For this purpose the simple fracture of the "pan" type, which is found in the case of smooth cylindrical samples of plastic material (which are destroyed in the case of the extension with the formation of a neck-like shape) is used. This fracture is characterized by the fact that on the "bottom of the pan" there is a coarser structure in the center, where the first damage was done by the working material passing through, whereas on the wall of the pan, which is inclined at an angle of 45° , there is a finer structure, which is produced by final destruction. A comparison between complicated and simple fractures showed that the former also represent a pan, only that it is modified in accordance with its shape of a disk. In the first seven series fractures, thanks to the homogeneous structure and the high degree of plasticity, were tough and pan-shaped, and there was no indication of any influence

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32-9-24/43

Analysis of the Structure of Fractures of Rotating Disks

exercised by the different initial concentration of stresses upon the amount of resistance against fracture. In the eighth series, which had a lower degree of plasticity because of greater strength and a heterogeneous structure, the fractures in the disks were brittle, and resistance against fracture was lower. There are 6 figures, 1 table, and 5 references, 4 of which are Slavic.

ASSOCIATION: Central Scientific Research Institute for Technology and Machine Construction (Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya)

AVAILABLE: Library of Congress

Card 2/2

KOBRIN M M

IVANOV, V.V., kandidat tekhnicheskikh nauk, dotsent; KOBRIN, M.M., kandidat tekhnicheskikh nauk.

Increasing the fatigue strength of cylindrical and conical rolls with press fit by means of cold rolling. [Trudy] TSVIITMASH: 85: 40-66 '57. (MIRA 10:9)
(Steel--Cold working) (Rolls (Iron mills)--Testing)

KOBRIN, M.M., kandidat tekhnicheskikh nauk.

~~Increasing the fatigue strength of screw threads on bore rod lock joints by rolling. [Trudy] TSNITMASH no.85:83-90 '57. (MIRA 10:9)~~
(Screw threads) (Rolling (Metalwork))

KOBRIN, M.M., kandidat tekhnicheskikh nauk.

**Effect of preliminary loading on the resistance of press joints
to cyclic torsion. [Trudy] TSNIITMASH no.85:90-99 '57.(MLBA 10:9)
(Power presses--Testing) (Torsion)**

KOBRIN, M.M., kandidat tekhnicheskikh nauk.

Measuring deformations by means of an adjuster ring in the study
of residual stresses according to the Lake method. [Trudy]
TSNIITMASH no.85:198-210 '57. (MIRA 10:9)
(Deformations (Mechanics)) (Strains and stresses)

KOBIN, M.M., kand.tekhn.nauk; RABINOVICH, V.P., inzh.; SHISHOKINA, K.V.,
inzh.

Strength of rotating disks with residual stresses. Energomashinostroyeni
4 no.4:12-16 Ap '58. (MIRA 11:7)
(Disks, Rotating)

SOV/96-58-5-4/27

AUTHOR: Kobrin, M.M., Candidate of Technical Sciences

TITLE: Overspeed Tests on Rotating Discs with Eccentric Hole Arrangement (Razgonnyye ispytaniya vrashchayushchikhaya diskov s ekstsentrichno raspolozhennymi otverstiyami)

PERIODICAL: Teploenergetika, 1958, Nr 5, pp 21 - 25 (USSR).

ABSTRACT: In the present context, eccentric holes means holes on a circle concentric with the axle of the wheel, as distinct from a central hole through which the axle passes. Eccentric holes are very dangerous in a rotating disc because of local stress concentrations. In the plane-stressed state that is set up in such a disc, the most highly-stressed parts are the zones near points A and B, on the edges of the eccentric holes, as shown in Figure 1. In these zones, one of the principal stresses (tangential or radial) is nearly zero and the other is at a maximum. Since the theoretical concentrations have been shown by a previous work to be very high, it was necessary to study the actual influence of eccentric holes on the strength of rotating discs experimentally by making destructive overspeed tests. Previous work has shown that the presence of eccentric holes in discs of brittle heat-resistant material causes considerable reduction in the strength but corresponding data for discs of plastic alloy steels are not available.

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SOV/96-58-5-4/27

Overspeed Tests on Rotating Discs with Eccentric Hole Arrangement

This article describes results obtained in the TsNIITMASH (Scientific Research Institute of Engineering Technology) during an experimental investigation of the actual influence of eccentric holes on the failure of rotating discs of improved plastic steel, 34KhNM. The chemical composition of the steel, the heat-treatment and mechanical working of disc blanks and the overspeed test procedure have been recorded previously, partly in Teploenergetika, 1957, Nr 7. Tests were also made to study the advisability of cold-hardening the holes by plastic deformation to increase the local strength.

Finally, the results of overspeed tests were used to analyse the nature of the failures according to the ratio of the radial and tangential stresses in the zone near the holes. The stress conditions of a rotating disc have been most fully studied by the optical-polarisation method. This work showed that the weak section in such discs on a radial section through the centre of an eccentric hole and that the most vulnerable zone in this section is that nearest to the centre of the disc, point A.

Experiments on the model turbine discs illustrated in Figure 2

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Overspeed Tests on Rotating Discs with Eccentric Hole Arrangement

included overspeed tests on specimens without eccentric holes and on others with three and with 6 eccentric holes symmetrically arranged. The value of d/n (d = hole diameter, n = distance between edges of holes) for 3 and 6 holes were respectively 0.08 and 0.18, which precluded interaction between holes. In some of the discs, the holes were strengthened by cold plastic working, whereby the hole diameters were stretched from 9 to 9.3 mm. The discs were classified into three groups depending on the ratio of the radial and tangential stresses along the radius. Stress distribution diagrams relating to each of the three groups are drawn in Figure 3. These diagrams are constructed for a nominal speed of 18,000 rpm. An approximate index of the nature of the stress conditions of the disc is the ratio of the radial to the tangential stress taken from the stress diagrams of Figure 1 for discs without eccentric holes. Altogether 10 specimens were tested. The mechanical properties of the material for each are given in Table 1. The resistance to failure of the discs and the radial and tangential stresses at failure were calculated from the speed at failure. The theory of elasticity furnished only

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Overspeed Tests on Rotating Discs with Eccentric Hole Arrangement

approximate calculations because it ignores stress redistribution beyond the elastic limit at the moment of failure but the calculations are sufficiently accurate for our purpose.

The results of overspeed tests are given in Table 2; the types of failure can be seen from the photographs in Figures 4 - 8 and are discussed.

Examination of the data in Table 2 for discs with and without eccentric holes shows that in our tests, unlike American tests in discs of brittle heat-resistant material, the presence of eccentric holes does not reduce the resistance to failure of rotating discs. As in the previous work on discs with keyways, this is associated with the good plastic properties of steel 34KhN3M within the limits of the comparatively small turbine discs used for model testing. In practice, of course, discs will be larger and the plasticity will be affected by forging.

There was fairly good agreement between the mean tangential stress and the tensile strength of discs that failed on the radial section due to tangential stresses and those that

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Overspeed Tests on Rotating Discs with Eccentric Hole Arrangement

failed on annular sections due to radial stresses. This was unexpected and a brief explanation is offered. As will be seen from Figure 8, in the zone near the hole there is appreciable local constriction of the disc by tangential stresses, which shows that when the disc fails under radial stress, the tangential stress is at that instant also near the ultimate strength. Finally, the data in Table 2 shows that cold working of the holes has no influence on the strength of the disc and is accordingly deprecated. There are 8 figures, 2 tables and 9 references, 5 of which are Soviet and 4 English.

Card 5/5

1. Disks--Test results 2. Disks--Failure 3. Disks--Stresses
4. Disks--Materials

96-1-9/31

AUTHORS: Kobrin, M.M., Candidate of Technical Sciences and
Rabinovich, V.P., Engineer.

TITLE: On the Loosening-speed of Discs with Keyways (Ob osvobozhdayushchem chisle oborotov diskov so shponochnymi pazami)

PERIODICAL: Teploenergetika, 1958, vol.5, No.1, pp. 34 - 37 (USSR).

ABSTRACT: Calculation of the loosening-speed of discs, that is the speed at which the disc becomes separated from the shaft, is an essential stage in the design of built-up rotors. A formula is given for the loosening-speed based on the assumption that at this speed the radial stress on the bore is zero. The author has observed that, contrary to the general belief, during overspeed testing of turbines the loosening-speed of the discs may be much higher than the calculated value. Loosening-speed tests were made on models, as illustrated in Fig.1. One had two diametrically-opposite rectangular keyways; another had none. The discs were made of steel 32 XH3M, the mechanical properties of which are given, and were shrunk on to a shaft 50 mm dia., illustrated in Fig. 2, with an interference of 0.03 - 0.06 mm. They were press-fitted, the pressing diagrams being recorded. The mating surfaces of the disc and shaft were ground and lubricated with machine oil. Overspeed tests on the discs were made on the equipment described in a previous article in

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On the Loosening-Speed of Discs with Keyways. APPROVED FOR RELEASE: 09/18/2001 CIA-RDP86-00513R000723410018-5

Teploenergetika, 1957, No.7. Runs were made at different speeds and loosening was recognised by angular displacement of the disc on the shaft. The distribution of radial and tangential stresses when the model is rotated at 18 000 r.p.m. is illustrated in Fig.3. The measurements and the calculated loosening-speeds are tabulated, showing good agreement for discs without keyways but discrepancies for those with two diametrically-opposite keyways, which became loose only at a speed of 1.8 - 2.3 times the calculated value. This was at first attributed to distortion of the shaft, which was supposed to be swelling into the keyway as shown in Fig. 4A; but this supposition was disproved. It was, however, observed that when the disc was pressed onto the shaft it became trapezoidal in shape. Deformation observations were made on other discs with keyways, one of which was additionally fixed to the shaft by thin strips of low rigidity. These strips made it possible to drive the disc after it had been released but did not restrict expansion of the disc during rotation, so that observations of strain could be made at very high speeds. The tests were stopped after a speed of 21 500 r.p.m. at which plastic strain was found. The strain was not symmetrical, the hole having become oval as

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On the Loosening-speed of Discs with Keyways.

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KOBRIN, M. M.

AUTHORS: Kobrin, M. M., Candidate of Technical Sciences and 129-58-5-12/17
Shishokina, K. V., Engineer.

TITLE: Retarded Failure of the Reinforcing Rings of the Supporting
Rolls of Cold Rolling Stands (Zamedlennoye razrusheniye
bandazhey opornykh valkov kholodnoy prokatki)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 5,
pp 43-48 (USSR)

ABSTRACT: In addition to known types of failures of rolls,
there have been cases of brittle cracking of the
reinforcing rings as a result of which a brittle fracture
occurs in the tubular reinforcing rings which were tightly
(shrink) fitted on the backing roll; the fracture was
orientated in the direction of the generatrix. The
fractured reinforcing rings consisted of 2000 mm long
tubes with an outside diameter of about 1600 mm and
800 inside diameter produced from 9Kh type steel with
vanadium which, after annealing, was subjected to further
heat treatment by repetitive hardening in water and in
oil. The hardened rings were tempered at 400°C so as
to obtain the required hardness of 60 to 75 Shore units.
Since little data is published in literature on the

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Cold Rolling Stands

tendency to develop slow failures of stools of this type which are used for such reinforcing rings, the authors have investigated this tendency to slow failure of the steel 9Kh in the hardened and in the tempered states. The composition of the investigated steel was: 0.85% C, 0.32% Mn, 0.28% Si, 0.018% S, 0.027% P and 1.59% Cr. Notched specimens (Figure 2) were used which were subjected to static tension. The specimens were cut from 18 mm dia. rods, heated for three minutes in a salt bath to 830°C and hardened in oil. This was followed by tempering for three hours at 150, 400 and 730°C and cooling in the furnace. The tendency of the material to slow failure was determined in three stages. At first the strength σ_b^{cr} of notched specimens was determined for ordinary short duration tests, establishing for each type of heat treatment the appearance of the fracture, the character of the obtained diagram, the transverse contraction in the notch after fracture and the degree of scattering of the obtained values. In the second stage Card 2/4 the specimens were loaded with a constant tensile load for

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a duration of 240 hours and, in some cases, for a duration of up to 1800 hours. The third stage consisted of short duration tests of those specimens which did not fracture during the long duration loading of the second stage and also in determining the ductility of the specimens in the notch after fracture; comparison of the plasticity of the specimens in the notch before and after long duration loading enabled evaluation of the changes in the properties of the material. The results of the first stage of the tests are entered in Table 1. Table 2 gives the contraction of the specimens in the notch during the short duration tests carried out on the specimens which did not fracture during the long duration loading. The data given in these tables and in the graphs indicate that the steel 9Kh shows a tendency to slow failure in the brittle state in short duration as well as long duration loading. Brittleness and a tendency to slow failure was detected after tempering the hardened steel at 400°C, i.e. at the temperature at which the tempering of the reinforcing rings of the backing rolls is carried out. Therefore, the authors recommend using a heat

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treatment regime which would ensure a high hardness and abrasion stability at the rolling surface and a high ductility of the material in the most highly stressed sections at the surface of the internal hole and this can be achieved, for instance, by surface hardening. There are 5 figures, 2 tables and 7 references, 5 of which are Soviet, 1 German and 1 English.

ASSOCIATION: TsNIITMASH

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1. Steel-Fracture-Analysis 2. Rolling mills-Equipment-Failure
Card 4/4 3. Steel-Rolling equipment-Failure

Kobrin, M. M.

AUTHORS: Kobrin, M. M., Zaytsev, G. Z. 32-2-27/60

TITLE: Methods for the Fatigue Testing of Large Coarsely Modulated Cogged Wheels (Metodika ustalostnykh ispytaniy bol'shikh krupnomodul'nykh shesteren)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 2, pp. 193-197 (USSR)

ABSTRACT: Cast and forged cogged wheels with a modul of $M = 10$, and a tooth depth of $l = 140$ mm, a cog number $z = 75$ and a outside diameter of $D = 774$ mm were investigated in this paper. The present investigations were conducted similar to the ones conducted repeatedly with smaller cogged wheels on a pulsator, however, because of the large size of the cogged wheels only sections were subjected to strain, that is to say, parts with four cogs. According to a proposal by M. I. Chuloshnikov V. P. Starostin two sections could also be investigated simultaneously. When one cog of the cogged wheel is subjected to strain, the rupture can be produced on one side by a stretching, on the other side by a compression. A figure gives the schematic distribution of force on a

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showed, that at the hardened cog top, at the point of touching, destructions occurred with small excess loads, whereas greater loads caused the formation of cracks at the cog flank observed most. There are 8 figures and 6 references,

Methods for the Fatigue Testing of Large Coarsely
Modulated Cogged Wheels

32-2-27/60

ASSOCIATION: Central Scientific Research Institute for Technology and
Machine Building (Tsentral'nyy nauchno-issledovatel'skiy
institut tekhnologii i mashinostroyeniya)

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1. Gears-Test methods

Card 3/3

GLINER, Boris Moiseyevich [deceased]; KUDRYAVTSEV, I.V., prof.,
retiree; KOBZIN, M.M., kand.tekhn.nauk, red.; BEYZEL'-
MAN, R.D., red.isd-va; BALANDIN, A.F., red.isd-va; SMIRNOVA,
G.V., tekhn.red.

[Determination of mechanical and technological properties
of metals] brief reference book] Opredelenie mekhanicheskikh
i tekhnologicheskikh svoistv metallov; kratkoe spravochnoe
posobie. Isd.2., ispr. i dop. Moskva, Gos.nauchno-tekhn.
isd-vo mashinostroit.lit-ry, 1959. 158 p. (MIRA 12:8)
(Metals--Testing)

S/032/60/026/012/019/036
B020/B056

AUTHORS:

Kobrin, M. M. and Dekhtyar', L. I.

TITLE:

Deformation Correction and the Precise Representation of the
Bühler Method of Direct Determination of Residual Stresses

PERIODICAL:

Zavodskaya laboratoriya, 1960, Vol. 26, No. 12,
pp. 1392-1398

TEXT: In the present paper, a deformation correction is suggested, which permits an exact consideration of the deformations caused by cutting. The possibility is shown to record an exact deformation curve by means of the correction mentioned, and thus also accurately to calculate the residual stresses from one single equation using the direct Sachs method. The authors also suggest a new combined method of determining the residual stresses, which consists in introducing a correction into the curve of the dependence of the change in the respective deformation δ or ϵ upon the variable surface P of the ground and treated cylinder (disk). The introduction of the correction permits calculation of the residual stresses both from the separated (for the sections of the preceding and final cutting) and from

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Representation of the Bühler Method of Direct
Determination of Residual Stresses

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single relations (for grinding and treating along the entire radius). The suggested introduction of the correction is demonstrated on the basis of the calculation of residual stresses in a disk from the relations mentioned. For the introduction of corrections for the deformation measured in the final stage of cutting, the final extent of the deformation, determined after the preceding grinding or treatment has been carried out, is used. The ratio between the deformations on the external and internal surface of a disk with residual stresses, which had been cut open to a ring having the radius r , is investigated (Fig. 1). The results obtained by checking the method are shown in Figs. 2 and 3 in form of the deformation curves and diagrams representing the residual stresses. In Table 1 the residual stresses for the ground sections after introduction of corrections according to the method suggested by the authors together with the respective results according to the method developed by L. A. Klikman and A. M. Babayev are compared with one another. The results obtained for the residual stresses with a correction carried out according to both methods show a perfect agreement. The method suggested by Bühler for the calculation of residual stresses by means of a single deformation curve may be seen from

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